EXHIBIT A

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNIFIED PATENTS, LLC,
Petitioner,

v.

WSOU INVESTMENTS LLC d/b/a BRAZOS LICENSING AND DEVELOPMENT,
Patent Owner.

Case: IPR2021-01191
U.S. Patent No. 7,333,770

PETITION FOR *INTER PARTES* REVIEW OF CLAIMS 1-2, 4-6, AND 16-18 OF U.S. PATENT NO. 7,333,770

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PETITIONER'S EXHIBIT LIST

Exhibit No.	Description
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1002	Declaration of Jon Weissman, Ph.D.
1003	*Curriculum Vitae* of Jon Weissman, Ph.D.
1004	File History of U.S. Patent Application No. 10/250,480 as obtained from PAIR
1005	U.S. Patent No. 6,047,327 to Tso et al. ("Tso")
1006	PCT Application Publication No. WO 97/41654 to Telefonaktiebolaget LM Ericsson ("Ericsson")
1007	U.S. Patent No. 5,896,379 to Haber
1008	U.S. Patent No. 6,757,539
1009	U.S. Patent No. 6,925,074
1010	ODBC 2.0 Programmer's Manual (TimesTen Performance Software May 2000).
1011	T. Imielinski, et al., *A Systematic Approach to Relational Database Theory*, Proceedings of the 1982 ACM SIGMOD International Conference on Management of Data, pp.8-14 (1982).
1012	Dictionary of Communications Technology 3rd Edition (Wiley 1998) (excerpted)
1013	Declaration of Kevin Jakel
1014	U.S. Patent No. 6,055,364
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Exhibit No.	Description
1016	U.S. Patent No. 6,996,072 to Minborg
1017	U.S. Patent No. 6,327,267
1018	U.S. Patent No. 6,469,998

CLAIM LISTING

CLAIM 1:

[1.Pre] A device for broadcasting information in an access network comprising **[1A]** a plurality of interconnected nodes configured for conveying streams of information items between information content providers and receiver terminals, characterized in that **[1B]** said device is installed in one or more network nodes and comprises **[1Bi]** a node profile management circuit configured by an operator of the network or an operator of the node as a function of objective or subjective criteria and **[1Bii]** a mechanism configured for filtering broadcast information items that controls a switch to filter said information items.

CLAIM 2:

A broadcasting device according to claim 1, further comprising a mechanism configured for synthesizing downstream node profiles configured for automatically updating the node profile management circuit in which said broadcasting device is installed as a function of subjective criteria.

CLAIM 4:

A broadcasting device according to claim 1, characterized in that it is applied to any type of access network.

CLAIM 5:

A broadcasting device according to claim 1, characterized in that it is applied to a

mobile radio network access network.

CLAIM 6:

A broadcasting device according to claim 1, characterized in that it is applied to a mobile radio network access network using a space segment.

CLAIM 16:

[16.Pre] A broadcast network having a plurality of nodes, comprising:

[16A] a node configured to receive input information streams from an upstream node and output processed information to a downstream node, said node comprising,

[16Ai] a circuit configured to manage profile information of said downstream node,

[16Aii] a filter mechanism configured to receive said managed profile information from said circuit and broadcasting information and routing information associated with said input information streams, and

[16Aiii] a switch, controlled by said filter mechanism, said switch configured to control retransmission of information items of said input information streams whose broadcasting criteria correspond to criteria of the profile of the downstream node.

CLAIM 17:

The broadcast network of claim 16, wherein if broadcasting criteria of an

information item does not correspond to the criteria of the profile of the downstream node, the filter mechanism commands the switch to discard the information item.

CLAIM 18:

The broadcast network of claim 16, further comprising a synthesizing mechanism that receives profile information about the downstream node, and is configured to synthesize said profile information and supply said synthesized information to said circuit, and automatically update the circuit in which the device is installed as a function of subjective criteria.

Unified Patents, LLC requests *inter partes* review of claims 1-2, 4-6, and 16-18 ("the Challenged Claims") of U.S. Patent 7,333,770 ("the '770 patent").

I. INTRODUCTION

The '770 patent relates to systems for distributing broadcast data to users based on certain criteria. The alleged invention seeks to increase "the effectiveness" of a broadcaster's "information campaign." Ex-1001, 1:13-16. Filters installed at a "node" in a network are used to identify recipients for the message. *Id.*, 2:18-20 ("[W]ith a view to simple filtering on reception, information items to be broadcast are associated with broadcast criteria and with routing constraints."). A filter may be applied based on "subjective criteria" such as end-user interests. *Id.*, 2:23-24. The Challenged Claims were allowed when the Applicant distinguished the claims from prior art that taught a "pull" technique for accessing information of interest instead of a broadcast technique. Ex-1004, p.360. That was not a patentable distinction.

Instead, prior art such as Tso and Ericsson—neither of which was of record during examination—shows information broadcast systems that broadcast data "dependent on various factors" including user locations, time, and "information contained in a user profile." Ex-1005, 1:48-52; *see also* Ex-1006, 2:30-3:2 (describing broadcasting information "to particular subscribers at predetermined times and/or upon occurrence of predetermined events which are triggered in

accordance with the customer-defined profile of each particular subscriber").

As demonstrated herein, the Challenged Claims are not patentable. Therefore, trial should be instituted and the claims should be canceled.

II. THE '770 PATENT

A. THE ALLEGED INVENTION

The '770 patent includes a single Figure showing "the installation of a device" in a node, "which can be an input node, an output node, or an intermediate node of an access network." Ex-1001, 3:9-12. An operator may configure the node. *Id.*, 3:24-26. The node receives "input streams of information coming from an upstream node 2." *Id.*, 3:27-28. The node has a "node profile" established based on profiles of downstream nodes. *Id.*, 3:3:36-42. "Each information item broadcast is associated with information characterizing it, in particular, information enabling filtering in accordance with objective or even subjective criteria . . . ." Ex-1001, 5:1-4. Objective criteria includes information like "geographical position," and subjective criteria includes information such as "interests" and "leisure activities." *Id.*, 4:13-23. Filtering the data for broadcast to downstream nodes allows for information to be "perfectly targeted" to specific users based on the filtering process described by the '770 patent. Ex-1001, 5:53-60.

B. PROSECUTION HISTORY

The '770 patent issued from U.S. Patent Application No. 10/250,480, which

is a national stage application of a PCT application filed on January 3, 2020. Ex-1001, cover. That PCT application claimed the benefit of a French patent application filed on January 4, 2001. *Id.* For the purposes of this Petition, an earliest effective filing date of January 4, 2001 is assumed.

Claims 1-6 were pending after a preliminary amendment was filed. Ex-1004, p.433. Those claims were rejected as being anticipated by U.S. Patent Application Publication No. 2002/0021696 to Minborg. *Id.*, p.434. In response, the Applicants antedated Minborg by perfecting their priority claim to their earlier-filed French application. *Id.*, p.424. The Applicants also added new claims 7-18 with their response. *Id.*, pp.417-420.

The Examiner issued a final office action rejecting claims 1 and 3-6 as being anticipated by U.S. Patent No. 6,996,072 to Minborg, and other claims over combinations of U.S. Patent No. 5,987,011 to Toh, U.S. Patent No. 5,835,497 to Litzenberger, U.S. Patent No. 6,807,675 to Maillard, and U.S. Patent Application Publication No. 2005/0008039 to Funaya. Ex-1004, pp.377-386.

The Applicant argued that Minborg failed to disclose "a device for broadcasting information in an access network," because Minborg "relates to 'pull' technology,"—"that is, a user dials a number, and then a data object known as a phonepage is provided to that user, as well as the other part [sic] on the phone line." Ex-1004, p.360. Minborg "does not disclose or even suggest 'push' technology,"

and "cannot be considered to be directed to 'push' technology," which is "the opposite technology of the claimed invention." *Id.* The same argument was repeated in a Pre-Appeal Brief Request for Review. *Id.*, pp.337-338. After that Request was filed the Examiner allowed the claims based on the arguments presented in the after final response. *Id.*, p.324.

III. THE GROUNDS PRESENTED HEREIN RAISE NEW ISSUES NOT PREVIOUSLY CONSIDERED BY THE OFFICE

Unlike Minborg, the primary reference relied upon by the Examiner during prosecution, Tso relies upon "push" broadcast technology to provide information broadcast by content providers to clients connected to an access network. *Infra* §VI.A. Therefore, this Petition, and the prior art presented in it raises new issues and arguments that were not considered when the decision to issue the '770 patent was made. Thus, the Board should not deny this Petition under §325(d) and should instead take up this Petition on the merits, institute trial, and cancel the Challenged Claims.

IV. PERSON OF ORDINARY SKILL IN THE ART ("POSA")

A person of ordinary skill in the art ("POSA") at the time of the alleged invention on January 4, 2001 would have had a bachelor's degree in electrical engineering, computer engineering, computer science, or a similar field and approximately two years of experience in telecommunications, computer

networking, or computer programming for network-based applications. Ex-1002, ¶¶26-28. With this level of experience, a POSA would have been familiar with the standardized ODBC API, SQL queries, and how to implement various information filtering techniques and network-based applications on "hardware 'circuits,'" such as processors. Ex-1002, ¶27 (citing Ex-1005, 6:40-43, Ex-1014, Abstract, 1:7-8 and Ex-1015, 7:18-20, 7:29-34).

V. CLAIM CONSTRUCTION

Claim terms are construed according to their ordinary and customary meaning as understood by a POSA in light of the intrinsic record. 37 C.F.R. §42.100(b); *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). Petitioner identifies the following claim constructions being applied for the purposes of this proceeding.

A. "A MECHANISM CONFIGURED FOR FILTERING BROADCAST INFORMATION ITEMS" (CLAIM 1) AND "FILTER MECHANISM" (CLAIM 16)

Claim 1 recites "a mechanism configured for filtering broadcast information items." Because this limitation does not use "means for" language this limitation should be construed as a "filter" that performs the recited function. The '770 patent interchangeably refers to the claimed "mechanism" as a "filter mechanism 6" and thus, these two phrases from claims 1 and 16 should by interpreted the same way. Ex-1001, Abst., 3:48-49, 4:45-48, FIG. 1; Ex-1002, ¶60 ("A POSA would have seen

that the '770 patent uses 'filter,' 'filter mechanism,' and 'mechanism 6' interchangeably.").

In the alternative, and to the extent that the Patent Owner argues or the Board finds that the word "mechanism" causes this limitation to be construed under 35 U.S.C. §112, ¶6[1] (now §112(f)), Petitioner presents and applies an alternative construction consistent with that provision.

Under §112, ¶6, the recited function is "filtering broadcast information items." The '770 patent describes an algorithm that enables the claimed "mechanism" to perform the function of "filtering broadcast information items." Specifically, the '770 patent states:

> filter mechanism 6 . . . receives as an input the node profile established by the node profile management circuit 8 as well as broadcasting criteria and routing constraints associated with the information items in the streams of information.

Ex-1001, 3:42-47; *id.*, 4:9-12 (broadcast device can "apply filtering to streams of broadcast information" in accordance with criteria).

> Filtering of received information items in the node 1 is based on the comparison of the broadcasting criteria

[1] Because the '770 patent predates the codification of the AIA, Petitioner refers to §112, ¶6 rather than §112(f).

> associated with the information items and the criteria of the profile of the node. In the case of a match, the information item is retained in the cache memory. Otherwise, the information is discarded.

Id., 4:24-29; 4:30-41 (describing broadcasting information in "a segmented manner in the form of information items" which "deal[] with only one or a few subjects" based on information associated with items in the stream "for filtering the steam of information" according to criteria).

> The filter mechanism 6 therefore receives as input the criteria of the profile form the node profile management circuit 8 and the information associated with a given information item enabling it to be characterized.
>
> Accordingly, when the profile of the node 1 as determined by the node profile management circuit 8 confirms to the broadcast criteria associated with an information item of an information stream incoming to the node 1, which criteria are contained in the headers of the information items, the filter mechanism commands the switch to retain the information item in memory.

Id., 4:45-55; *see also id.*, 5:1-3 ("Each information item broadcast is associated with information characterizing it, in particular information enabling filtering in accordance with objective or even subjective criteria, as explained above."). The '770 patent explains that the use of cache memory to retain information items for

later retransmission is optional. *Id.*, 5:18-35. In this embodiment,

> the device filters the received information items as a function of criteria of the profile of the node in which it is installed and then retransmits information items whose broadcasting criteria correspond to the criteria of the profile of the node directly to downstream nodes in the coverage area without taking account of periods in which the network load is low or constraints associated with the delay in routing the information to users.

Ex-1001, 5:28-35.

Insofar as these limitations are construed as means-plus-function terms, based on the '770 patent specification the claimed "mechanism configured for filtering broadcast information items" would have been understood to be an executable algorithm implemented on hardware for executing instructions or special purpose circuits. Ex-1002, ¶62 ("Such functionality would have been understood to be performed routinely in computer code such as software programmed to receive the profiles and perform the comparisons."). For instance, the filter mechanism "receives as an input" the node profile and information characterizing an information item, makes a filtering determination, and then "commands" the switch about whether the information item should be retransmitted or discarded. Ex-1002, ¶¶62-63 (citing Ex-1001, 3:42-47, 4:45-55, 5:36-39). The description is consistent with the "filter mechanism" being implemented in computer code executed by hardware

or implemented in special purpose hardware. Ex-1002, ¶62.

Based on the foregoing, the corresponding structure is computer-executable code or special purpose hardware configured to: (1) receive as an input at least profile criteria and information item broadcast criteria, (2) compare the profile criteria to the information item broadcast criteria, and (3) issue a command to a switch to indicate whether the information item should be transmitted to a user. Ex-1002, ¶64.

B. "MECHANISM CONFIGURED FOR SYNTHESIZING" (CLAIM 2) AND "SYNTHESIZING MECHANISM" (CLAIM 18)

The '770 patent uses the "mechanism configured for synthesizing" and the "synthesizing mechanism," a "downstream node profile synthesizer," and "synthesizer device," in the same way. Ex-1001, FIG. 1 (item 10), 3:33-35 (referring to "synthesizer mechanism 10"), 3:39-40 (referring to "[t]he mechanism 10 that synthesizes"), 4:6-8 (referring to "downstream node synthesizer device 10"), 7:18-19 (claim 1 reciting "the synthesizer device"), 5:40-41 (referring to "the mechanism 10 for synthesizing"); Ex-1002, ¶66 (phrasing "interchangeably refer[s] to a synthesizer"). Therefore, these limitations should be construed to mean "a synthesizer" which performs a synthesis functionality.

In the alternative, and to the extent that the Patent Owner argues or the Board finds that these terms should be interpreted as §112, ¶6 limitations, Unified offers the following alternative construction under §112, ¶6.

If these terms are construed under §112, ¶6, the claimed function is "for synthesizing downstream node profiles" and "for automatically updating the node profile management circuit in which said broadcasting device is installed as a function of subjective criteria" (claim 2) and receiving "profile information about the downstream node," synthesiz[ing] said profile information," and "supplying said synthesized information to said circuit," and "automatically updating the circuit in which the device is installed as a function of subjective criteria" (claim 18).

The '770 patent explains that the device can "further include the mechanism 10 for synthesizing profiles of downstream nodes, to update the node profile management circuit 8 in which the device is installed automatically, as a function of subjective criteria." Ex-1001, 5:40-44. This mechanism "receives as input information concerning the profiles of downstream nodes," *id.*, 3:29-32, "synthesizes the profiles of the downstream nodes" and "supplies its results to a circuit 8 for managing the node profiles," *id.*, 3:38-42, thus automatically updating the node profile management circuit and the profile of the node, *id.*, 2:47-51 ("mechanism for synthesizing" is "for automatically updating the node profile management circuit . . . as a function of subjective criteria."), 4:1-5 (discussing automatic updating "of the profile of the node" when profile "integrates a variable component (typically subjective criteria)"), 5:40-44.

Based on the foregoing, the corresponding structure for performing the

claimed functions is a circuit or software algorithm executed by a circuit that (1) receives as an input information concerning profiles from downstream nodes, (2) synthesizes that information about the profiles of the downstream nodes, (3) supplies the results to the node profile management circuit. Ex-1002, ¶69. This results in the automatic updating of the circuit and the node profile. *Id.*

VI. PRIOR ART OVERVIEW

A. Tso (Ex-1005)

Tso issued on April 4, 2000 thus making it prior art under pre-AIA §§102(a), (b), (e). Ex-1005, cover. Tso describes a method and system for information distribution using broadcast techniques for "InfoCasts" between content providers and clients. Ex-1005, 1:7-10 ("[T]he present invention relates to automatic distribution of information to different users based on a select set of criteria."), 2:55-3:7 (describing communication system as including content providers, InfoCast servers, networks, and clients). Tso is analogous to the '770 patent because the '770 patent also relates to targeting information broadcasts to specific groups of users and is thus in the same field of endeavor. Ex-1001, 1:7-16. *See* Ex-1002, ¶73 ("Tso and the '770 patent are in the field of targeting broadcast data to specific users based on user criteria to allow targeting of content to users."). Moreover, both the '770 patent and Tso seek to solve the same problems of targeting broadcast data to users that are likely to be interested in the data. Ex-1001, 1:14-15 (discussing "targeting of the

groups of persons concerned" with broadcast information); Ex-1005, 1:44-65 (explaining that invention allows for "information providers to target particular audiences for receiving information and advertisement"). *See also* Ex-1002, ¶74.

Tso's content providers can provide a wide range of content to InfoCast servers ranging from text to audio, to a multimedia stream. Ex-1005, 7:17-25. This data is received, and "InfoBites" are generated by the InfoCast server based on information provided by the content provider in the InfoCast. *Id.*, 7:30-44 ("[T]he part of each InfoBite that is summary information for each particular item in an InfoCast is created by the content provider providing the InfoCast."). Filters, including a "temporal filter, a positional filter, and a subscriber profile filter" are applied to the InfoBites to determine whether the data should be rebroadcast to specific users based on the time, the user's location, and user profile data. Ex-1005, 10:41-46, 13:31-34, 13:59-64. Using the filters, a "schedule/resource controller 61" determines that an InfoBite should be transmitted to specified users; depending on bandwidth constraints, the InfoBit may be broadcast with information items contained within an InfoCast to the user through a network such as a cellular network or a LAN. Ex-1005, 10:41-57, 13:59-14:8; FIG. 1 (item 27 is a LAN, item 21 is a cellular network). Therefore, Tso discloses a broadcast technique like that disclosed in the '770 patent.

B. ERICSSON (EX-1006)

Ericsson was published on November 6, 1997 thus making it prior art under at least pre-AIA §§102(a), (b), and (e). Ex-1006, cover. Ericsson describes a "method and system for disseminating information to subscribers of a mobile telecommunications network (30) from at least one information source (20) containing data which is updated continuously or at intervals." Ex-1006, Abstract. Data received from data source (20) is processed against "customer-defined profile[s]" to determine whether the information message should be transmitted to the subscriber's mobile device. *Id.* Ericsson is analogous to the '770 patent because, like the '770 patent, it describes disseminating information in networks based on data filtering and broadcasting data to specified groups of users based on profiles. It is thus in the same field of endeavor as the '770 patent. Ex-1001, 1:7-16; *see also* Ex-1002, ¶78 ("Both the '770 patent and Ericsson are in the same field.").

Moreover, both the '770 patent and Ericsson seek to solve the same problems of targeting broadcast data to users that are likely to be interested in the data. Ex-1001, 1:14-15 (discussing "targeting of the groups of persons concerned" with broadcast information); Ex-1006, 1:8-9 (prior art problem is that feeds of information "cannot be tailored to a particular subscriber's requirements"), 2:30-3:2 ("[I]nformation messages may be transmitted to particular subscribers at predetermined times and/or upon occurrence of predetermined events which are

triggered in accordance with the customer defined profile of each particular subscriber."); Ex-1002, ¶78.

C. HABER (EX-1007)

Haber was issued April 20, 1999 and is prior art under pre-AIA §§102(a), (b), (e). Ex-1007, cover. Haber describes "switching nodes" in a packet switched network that include a switch and at least one data processor. Ex-1007, Abstract. The data processor at the switching node is programmed to perform "non-switching network processing function[s], and that network processing function applies to user data conveyed by packets." *Id.*, 3:21-23. One of the functions that may be performed by the data processor within the switching node is to broadcast packets to certain destination nodes. 6:58-62. The data received by the data processor is stored and replicated for each recipient that is determined to be a recipient of the broadcast message, and the message is addressed and transmitted to a switch which then sends it to a downstream node. Ex-1007, 7:20-53. Haber is analogous to the '770 patent because it relates to techniques to broadcast data to specified recipients in a telecommunication network and is thus in the same field of endeavor as the '770 patent in that both relate to routing broadcast data to select recipients. Ex-1001, 1:7-16; Ex-1002, ¶81. Moreover, both the '770 patent and Haber seek to solve the same problems of targeting broadcast data to certain subscribers. Ex-1001, 1:14-15 (discussing "targeting of the groups of persons concerned" with broadcast

information); Ex-1007, 6:63-7:13 (describing identification of a "receiving group" for receiving a broadcast message based on destination node addresses); Ex-1002, ¶82 ("Haber and the '770 patent seek to solve the same problem of delivering data to certain subscribers over radio frequency communication links.").

VII. OVERVIEW OF CHALLENGE AND RELIEF REQUESTED

Petitioner challenges claims 1-2, 4-6, 116-18 of the '770 patent as follows:

Ground	Claims	Reference(s)	Statute
1	1-2, 4-6, and 16-18	Tso (Ex-1005) in view of Haber (Ex-1007)	§103(a)
2	1-2, 4-6, and 16-18	Tso in view of Ericsson (Ex-1006) and Haber	§103(a)

VIII. DETAILED DISCUSSION OF UNPATENTABILITY

A. GROUNDS 1 & 2: CLAIMS 1-2, 4-6, AND 16-18 ARE OBVIOUS OVER TSO IN VIEW OF HABER (GROUND 1) OR TSO IN VIEW OF ERICSSON AND HABER (GROUND 2)

1. Overview of Grounds 1 and 2

Ground 1 relies upon the combined teachings of Tso and Haber. Ground 1 relies upon Haber's teachings of controlling a switch with a processor used in performing packet broadcasts in a network to devices local to a node. Ground 2 relies upon the combined teachings of Tso and Haber, as applied in Ground 1 but also uses Ericsson to show that, at the very least, it would have been obvious to utilize Ericsson's "profile management system 14" in connection with Tso's InfoCast server to manage the node profile for the InfoCast server.

2. Claim 1

a. [1P]: "A device for broadcasting information in an access network"

To the extent the preamble is limiting, Tso discloses and renders it obvious. Tso describes "[a] communication system having a first server and a first client connected to the first server through a first network, wherein the first server selectively sends a set of InfoBites to the first client based on a filter." Ex-1005, Abstract. Tso's Figure 5 shows a process "of a normal broadcast operation from a server to a client." Ex-1005, 2:23-24. In step 101, the InfoCast server receives an "InfoCast broadcast" from a content provider. Ex-1005, 12:26-28. InfoBites are based on InfoCasts and are based on information "created by the content provider."[2] Ex-1005, Abstract, 7:30-32, 7:41-44. InfoBites are "sent via SMS broadcast" from an InfoCast server to client terminals. Ex-1005, 12:26-28; *see also id.*, 3:65-4:3 (GSM system "allows the sending of SMS broadcasts messages to all devices"), 11:23-26. Because Tso's InfoCast servers receive an InfoCast broadcast, and then broadcast data to downstream devices, the InfoCast servers are *devices for broadcasting information*. Ex-1002, ¶¶90-92.

Tso FIG. 1 shows that InfoCast server broadcasts information in an *access*

[2] In Tso, "InfoBite" refers to both a "complete item or a summary of the item." Ex-1005, 10:57-61.

network, namely, it causes data to be broadcast using SMS in a GSM access network via base station. Ex-1005, FIG. 2 (showing base station components providing access network), 3:65-4:3, 11:23-26, 12:26-28; Ex-1002, ¶93 (citing Ex-1008, 2:55-56 ("An access network is a network allowing at least one subscriber to access to [sic] a core network."); Ex-1009, 4:38-39 (referring to a "standard GSM access network portion provided by the BSSs")).

The claim does not require the *device for broadcasting* to be *in an access network* as opposed to *broadcasting information in an access network*, but to the extent that the preamble is limiting and requires the device to be "in" the access network, as opposed to merely *broadcasting information in an access network*, it would have been obvious to place Tso's InfoCast server "in" an access network like a GSM network. Ex-1002, ¶95. A POSA would have understood that an InfoCast server's functionality would not have materially changed if placed within the cellular access network itself, because it would have continued to serve InfoBites to clients connected to the cellular network. Ex-1002, ¶96 ("[T]he functionality performed by an InfoCast server would not have changed if placed within the cellular access network itself."); Ex-1005, FIG. 2. Placing the InfoCast server in the carrier's access network would have allowed a network operator—in this case a mobile carrier—to add an InfoCast function as a value-added service for their subscribers while maintaining control over the InfoCast infrastructure as well as being able to bill their

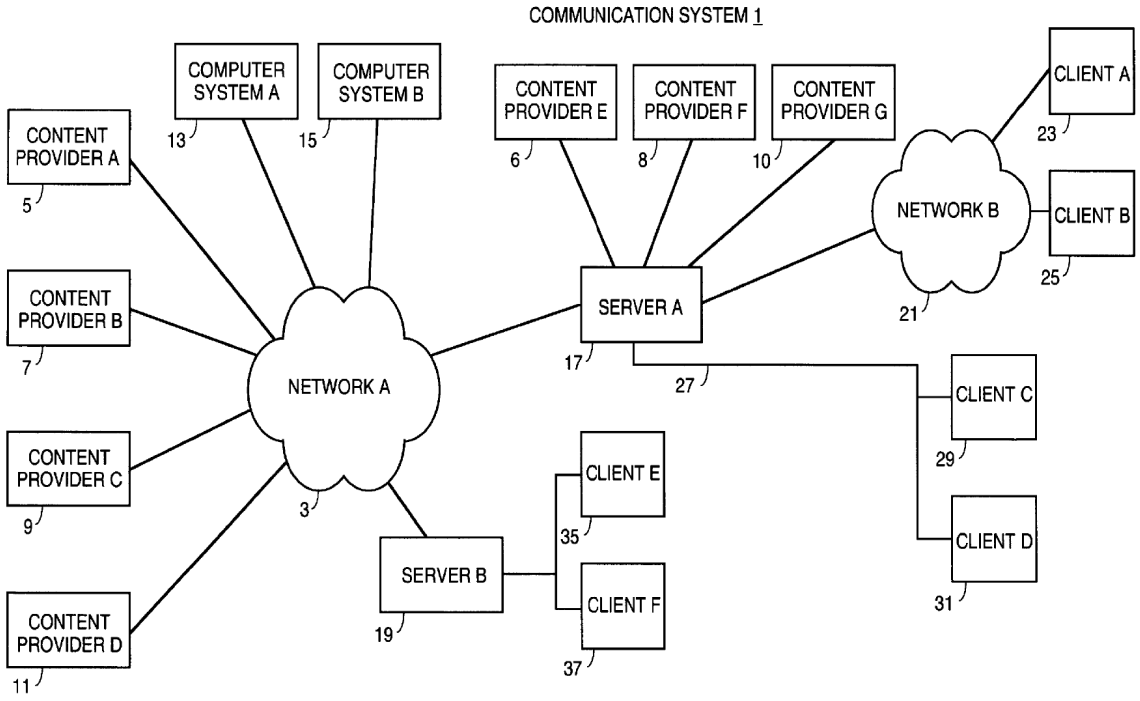
customers for the service. Ex-1002, ¶96.

Tso's system at the very least "is analogous to a system in which the InfoCast server is employed within the access network itself," Ex-1002, ¶97, and a POSA would have understood that a wireless carrier operating an access network would have been encouraged to implement the InfoCast server within its own network profit from the InfoCast service, thereby showing a design incentive to implement Tso's InfoCast server within a carrier's access network. Ex-1002, ¶97 ("Incorporating the InfoCast functionality in the existing infrastructure of a carrier network would have thus allowed the carrier to further expand service offerings to subscribers, monetize that additional service, and do without necessitating additional network infrastructure."). Implementing servers and services in access networks was a known technique as illustrated by the fact Tso implements an SMS service within the access network. Ex-1005, 3:52-57 ("[A] short message service (SMS) center 41 is connected to a mobile switching center . . . ."), 3:65-4:3 (GSM allows sending of broadcast SMS messages and GSM "functions are well known in the art"). And, using existing access network infrastructure to implement an InfoCast server would have been expected to reduce costs. Ex-1002, ¶96. Merely shifting server functionality from one location in a network to another would have been predictable and routine to the POSA as demonstrated by the fact that Tso implements "servers and services in access networks" using SMS services within the access

network. Ex-1002, ¶97.

b. [1A] "a plurality of interconnected nodes configured for conveying streams of information items between information content providers and receiver terminals"

Tso discloses and renders this limitation obvious. Tso discloses a *plurality of interconnected nodes* including "content provider" nodes (A-G), InfoCast Servers (A-B), and clients (A-F). Ex-1005, FIG. 1.



Ex-1005, FIG. 1, 2:1-3 ("[T]he sysetm supports the transfer of information over the nodes of many types of communication networks . . . ."), 2:54-3:7 (describing how content providers, servers, and clients are "connected" to networks). These nodes are interconnected, as is evident from the lines shown in FIG. 1 and drawn between the various interconnected nodes. Ex-1002, ¶98.

The nodes are *configured for conveying streams of information items between information content providers and receiver terminals* because the nodes carry information sent by content providers as "InfoCasts" which "can consist of either a data file containing one or more separate articles, or a video/audio feed." Ex-1005, 7:17-21; *see also id.*, 2:64-3:34 (describing various "content providers"), 7:17-18 (referring to "[i]tems of information that are sent to InfoCast servers" as "InfoCasts"), 10:53-61 ("complete item" may be sent and "InfoBite" can refer to complete item or a summary of the item); Ex-1002, ¶¶99-103.

InfoCasts can include "a multimedia feed containing one or more vide segments along with any associated audio," or "text file[s] containing one or more news stories." *Id.*, 7:21-25. These information broadcasts are s*treams of information items* such as videos, audio files, and text files; Tso's content providers can "provide a constant stream of new information." *Id.*, 3:28-34; Ex-1002, ¶100 ("These examples of data that can be provided . . . would have been understood to be a stream, just as indicated by Tso itself."). Different information items that may be included in streams include things like new stories, Ex-1005, 13:9-18, traffic information, *id.*, 13:59-8, or restaurant daily specials, *id.*, 15:52-67; Ex-1002, ¶100. Thus, nodes in Tso's system, such as content provider nodes and InfoCast server nodes are *configured for conveying streams of information items* such as audio, video, textual, and other information to client nodes. Ex-1002, ¶¶99-100 (quoting

Ex-1005, 7:16-55, 10:47-61).

The InfoCast data is transmitted *between information content providers* (*i.e.*, Tso's "content provider[s]" (A-G)) *and receiver terminals* (*i.e.*, clients A-F). Ex-1005, FIG. 1. InfoBites, which are based on the InfoCasts and includes "information created by the content provider providing the InfoCast" and can include the "complete item" of information, are broadcast by the InfoCast servers to the clients, which receive the data and allow a user to interact with the received data. Ex-1005, 7:30-32 ("For each item contained in an InfoCast, InfoFeed interface 57 will create an 'InfoBite,' which can be sent to a user in lieu of the full item, as described below."), 7:41-44, 10:58-61, FIG. 5 (describing a broadcast operation from a server to a client); *see* Ex-1002, ¶¶101-103.

c. [1B]: "characterized in that said device is installed in one or more network nodes and comprises . . . ."

Tso discloses and renders this limitation obvious. Tso explains that "InfoCast servers" such as "server A" is connected to, for example, "network B" and "content provider E," "content provider F," and "content provider G," as well as clients A-D. Ex-1005, 2:64-3:5, FIG. 1. The InfoCast servers—such as servers A and B—are located in network nodes defining connection points between various networks (*e.g.*, server A is in a node between network A and network B, and between content providers E-G and clients A-D). Ex-1005, FIG. 1; Ex-1002, ¶105. Indeed, the functionality provided by Tso is instantiated on some form of hardware in order to

execute it and is thus installed in a network node, even though "Tso does not explicitly refer to microprocessors or circuits explicitly." Ex-1002, ¶106. "[A] POSA would have understood that Tso's InfoCast functionality was implemented in computer code for execution on hardware at the network node." *Id.* Therefore, a POSA would have understood that the functionalities described as being performed by the InfoCast server, such as providing the InfoFeed Interface and managing databases, Ex-1005, FIG. 4, 4:48-53 (describing "open database connectivity (ODBC) application programming interface"), would have been performed by computer code executing on hardware and that hardware and software would have constituted a device installed in a network node. Ex-1002, ¶¶106-107. "This was the typical way to implement applications in computer networks and there were a variety of computer languages that could be used to write such code and POSAs were familiar with." *Id.* Therefore, Tso discloses that the InfoCast server (i.e., "said device") is *installed in one or more network nodes*. Ex-1002, ¶¶105-107.

d. [1Bi]: "a node profile management circuit configured by an operator of the network or an operator of the node as a function of objective or subjective criteria"

This limitation is disclosed and obvious over Tso (Ground 1). This limitation is also obvious over Tso in view of Ericsson (Ground 2).

Ground 1: Tso's disclosure of a subscriber database which a POSA would have understood to be supported by hardware including storage and a processor and

associated computer code and the "schedule/resource controller 61" together disclose *a node profile management circuit* because the subscriber database and supporting hardware and code for the "schedule resource controller 61" maintains and manages user profiles for all users served by the InfoCast server. Ex-1002, ¶¶110-115.

The subscriber database includes "the records of all users . . . who are currently in the territory serviced by server A 17." *Id.*, 4:65-5:1. The InfoCast server servicing a territory that the user is in "is responsible for maintaining and updating the user's record" until the user leaves the area serviced by that InfoCast server. *Id.*, 5:18-30. The "subscriber database" is implemented as a collection of data that is stored and managed by hardware and code executed by that hardware. Ex-1012, p.132 (defining "database" as "[a] collection of data stored electronically . . . ."); Ex-1002, ¶113 ("[A] POSA would have understood that Tso's subscriber database is implemented as a collection of data stored and managed by hardware and code executed by that hardware . . . .").

The schedule/resource controller is responsible for, among other things, updating the subscriber database to "revise the user profile contained as records in the subscriber database." Ex-1005, 15:41-44. "[A]n open databasae connectivity (ODBC) application programming interface (API)" is "coupled to" the "schedule/resource controller," thus giving the schedule/resource controller the

ability to access the subscriber database. *Id.*, 4:46-49.

Tso's subscriber database and the schedule/resource controller is *a node profile management circuit* because it is implemented at least in part on hardware circuitry and includes and manages the profiles of all users serviced by the node. Ex-1005, 4:65-5:1, 5:18-30, FIG. 3 (showing ODBC API and interface between InfoFeed and databases including subscriber database); Ex-1002, ¶¶113-114 (explaining that the controller functionality and ODBC API were provided via code executing on a circuit such as a microprocessor).

Additionally, the combination of Tso's schedule/resource controller and subscriber database is *configured as a function of objective or subjective criteria* because "positional information [i.e., *objective criteria*] of all users located in the domains served by server A 17" is used by the schedule resource controller as a filtering condition. Ex-1005, 4:34-36, 14:16-19 (explaining how an InfoBite can be sent based on "time of day and location of user criteria"), 16:34-43 (providing example of how InfoCast server can track physical locations of users), 21:42-45 (describing how "InfoCast server filter" is produced by "subscriber profile filter" in combination with "temporal filter" and "positional filter"). The schedule/resource controller uses the filter to broadcast InfoBites. *Id.*, 13:28-31 ("[T]he filter used by schedule/resource controller 61 will be based on time of day, the location of the user, and user profile criteria."). Moreover, the user profiles in the subscriber database

includes information such as "interests," which is *subjective criteria* and is "stored on a server database." *Id.*, 4:36-41; *see also* Ex-1002, ¶123 ("A POSA would have understood that Tso's subscriber database and schedule/resource controller are configured as a function of this user information for each user served by the InfoCast server . . . .").

Ground 2 (Tso in view of Ericsson): To the extent Tso does not explicitly disclose a "node profile management circuit," it would have been obvious to include one in Tso's InfoCast servers based on Ericsson's teachings. Ericsson describes a "profile management system 14, which is connected to a customer database 42 which may conveniently be located at . . . the message distribute centre 10," Ex-1006, 10:6-14, FIG. 2. Ericsson's "profile management system" either "includes or is connected to a customer database containing the customer profiles." Ex-1006, 5:2-4; *see also id.*, 10:14-15 ("Each service processor 12 can access the customer database 42 via the profile management system 14 . . . ."). As Dr. Weissman explains, Ericsson "further renders obvious using a 'circuit' for the node profile management circuit," based on the description of the profile management system as being "connected," and Figure 2's depiction of functionality the POSA would have understood to be implemented on processors and various hardware components." Ex-1002, ¶183. It would have been obvious to use Ericsson's "profile management system 14" to manage user profiles in Tso's InfoCast servers for the reasons

explained below. *Infra* §VII.A.3.

Configured by operator: Regardless of which way Tso is applied to this limitation and regardless of whether it is alone or in combination with Ericsson, it would have been obvious to configure the circuit *by an operator of the node*. Ex-1002, ¶¶116-122. Tso has several teachings relevant to the obviousness of this limitation: (1) disclosures related to the "subscriber database," which a POSA would have found obvious to define as a function of *subjective criteria* by the *operator of the node*; (2) disclosures related to the ODBC API, from which a POSA would have found it obvious to have the operator of the node configure drivers to link an application—like Tso's schedule/resource manager—to the database management system managing the subscriber database thereby allowing access to objective or subjective criteria associated with the users of the node.

First, Tso's reference to the database as being a "subscriber database" that contains "each user's information" shows that the database structure is created and managed by the InfoCast operator—i.e., the operator of the node. Ex-1005, 4:34-41; Ex-1002, ¶117. An initial profile of a user is "constructed by the user filling out a questionnaire," and the results are then "contained in the user's record." *Id.*, 21:33-37. Therefore, a POSA would have understood that the subscriber database schema "specifies, on the basis of the database administrator's knowledge of possible applications, those facts which can enter the database, or those of interest to the

possible users." Ex-1011, p.9; Ex-1002, ¶¶117-118 ("[A] POSA would have known that the database structure would have needed to be defined."). Thus, a POSA would have understood that the database including the "user's record" with their interests and other information would have been defined by the "database administrator," because that is the entity that defines the schema for the database. Ex-1002, ¶¶117-118. At the very least, it would have been obvious to have the operator of the node define the database schema—"those facts which can enter the database"—because the operator of the node would have administrated the InfoCast network and had "subscribers" that would have subscribed to receive the InfoCast service. *Id.*, ¶119. Therefore, the operator is the logical, and obvious choice for configuring the subscriber database as a function of criteria associated with the user—i.e., objective and/or subjective criteria. *Id.* ("Therefore, having the node operator as the entity that configured the node profile management circuit by defining database schema for the subscriber database and implementing the schedule/resource controller in a manner that can perform appropriate reads and writes to the database would have been a common sense, logical entity to configure the node profile management circuit."); *see also id.*, ¶122.

Second, Tso explains that the "open database connectivity (ODBC) application programming interface (API)," Ex-1005, 4:43-49, is used to provide "a layer of transparency for accessing the databases," *id.*, 6:41-43. "This function,

features and benefits of the ODBC standard is well known in the art." *Id.*, 6:40-43. A POSA would have understood that this well-known standard "allows applications to access data in database management systems (DBMS) using Structured Query Language (SQL) as a standard for accessing data." Ex-1010, p.19. Thus, Tso's application can be developed "without targeting a specific DBMS," and "[u]sers can then add modules called database *drivers* that link the application to their choice of database management systems." *Id.*; *see also* Ex-1002, ¶120. Applications, like Tso's schedule/resource manager "calls ODBC functions to submit SQL statements and retrieve results," and the driver processes the "ODBC function calls, submits SQL requests to a specific data source, and returns results to the application." Ex-1010, pp.21-23. Therefore, code would be needed to instruct the API to make SQL requests to the database that include "INSERT" commands (to add data to a database) or the selection of specific rows using "WHERE" subqueries to allow reading data for a specific row in a specific table, so as to retrieve "interests" included in the subscriber database for a particular subscriber. Ex-1002, ¶121.

In order to code such queries, the organization of the subscriber database would have been known in order to create an application and driver that can read into the subscriber database and write data to the subscriber database. This was a well-known and understood way for designing databases like Tso's subscriber database and for implementing tools like Tso's schedule resource controller to be

able to access and modify the database properly. Ex-1002, ¶121 ("A POSA would have known that writing applications for reading into a database required a known schema and would have required the application to be coded to read and write into the known database using appropriate indices."). For example, computer code in Tso's schedule/resource controller or other database management software (and ODBC driver) would have needed to be programmed to use appropriate indices into the subscriber database, and then identify fields to read or update for a particular subscriber profile record. *Id.* The schema and code required to read data from and write data to the database would have been coded and by such coding, configured by the operator of the node in setting up the database. *Id.*

Based on a POSA's understanding of Tso's disclosure, it would have been obvious to have the operator of the node create the database structures and write code for implementing Tso's subscriber database and schedule/resource controller because operators would have wanted control over database definition and management functionalities and to ensure interoperability with other systems, such as the billing system. Ex-1002, ¶¶119-122; Ex-1005, 4:50-53 ("Schedule/resource controller 61 is coupled to a billing service 63 . . . ."). A POSA would have merely applied routine database and application programming techniques such as using SQL queries, designing applications relying on databases, and programming drivers for the standardized ODBC API to implement Tso's techniques. Ex-1002, ¶¶120-122.

And because Tso envisions end-users subscribing to the service and providing information like their "interests" in order to create a filter, it would have been obvious to have the operator of the node—the provider of Tso's InfoCast service—define the subscriber database and implement the code required to access that database to obtain information about a user's specific objective or subjective criteria as defined by the database. *Id.*, ¶¶119-122. As explained in detail above, this would have merely used well-known and even standardized tools for implementing database technologies and applications by the entity that is most logically interested in doing so (the operator of the node).

As a function of objective or subjective criteria: Additionally, regardless of whether Tso is applied alone or in combination with Ericsson, Tso discloses that the node is configured as a function of *objective or subjective criteria*. For example, Tso explains that "positional information [i.e., *objective criteria*] of all users located in the domains served by server A 17" is used by the schedule/resource controller as a filtering condition. Ex-1005, 4:34-36, 14:16-19 (explaining how an InfoBite can be sent based on "time of day and location of user criteria"), 16:34-43 (providing example of how InfoCast server can track physical locations of users), 21:42-45 (describing how "InfoCast server filter" is produced by "subscriber profile filter" in combination with "temporal filter" and "positional filter"). The schedule/resource controller uses the filter to determine how (and whether) to broadcast InfoBites. *Id.*,

13:28-31 ("[T]he filter used by schedule/resource controller 61 will be based on time of day, the location of the user, and user profile criteria."). Moreover, the user profiles in the subscriber database includes information such as "interests," which is *subjective criteria* and is "stored on a server database." *Id.*, 4:36-41; *see also* Ex-1002, ¶123.

e. [1Bii]: "and a mechanism configured for filtering broadcast information items that controls a switch to filter said information items."

Under the constructions provided above, this limitation is obvious over Tso in view of Harber.

Tso discloses a *mechanism for filtering broadcast information items* because Tso's "schedule/resource controller 61" relies upon a "filter" that filters profiles according to subjective and objective criteria. Ex-1005, 13:27-34. Even if this limitation is construed under §112, ¶6 Tso discloses a filter that performs the function of *filtering broadcast information items* by disclosing a filter used by the "schedule/resource controller 61" that filters InfoBites and information items to be transmitted to users. Ex-1005, 7:30-55, 10:53-61. As described in further detail below, Tso also discloses computer-executable code (filter used by schedule/resource controller) or special purpose hardware configured to: (1) receive as an input at least profile criteria and information item broadcast criteria (receiving user profile data from subscriber database, *id.*, 13:31-34), (2) compare the profile

criteria to the information item broadcast criteria (performing filtering using "a subscriber profile filter," for example, *id.*, 10:41-46), and (3) issue a command to a switch to indicate whether the information item should be transmitted to a user.

Tso's "schedule/resource controller 61" relies upon a "filter" that filters *broadcast information items* (e.g., InfoBites and associated information items) according to objective and/or subjective criteria, thus disclosing a "*mechanism configured for filtering broadcast information items*." Ex-1005, 10:41-44 ("Schedule/resource controller 61 is responsible for filtering the InfoBites that are sent to a user based upon the user's profile as contained in the user's record and subscriber database 53—i.e., a subscriber profile filter, the user's current location—i.e., a locational filter, and the time of day—i.e., a temporal filter."), 10:53-61 (referring to transmission of "the complete item" when bandwidth permits). Tso's filter is "used by schedule/resource controller" to perform this functionality. Ex-1005, 13:27-34; *see also* Ex-1002, ¶¶125-127.

Under the alternative construction, Tso performs an algorithm of: (1) receive as an input at least profile criteria and information item broadcast criteria, (2) compare the profile criteria to the information item broadcast criteria, and (3) issue a command to a switch to indicate whether the information item should be transmitted to a user. For instance, the filter used by the schedule/resource controller receives as an input a "subscriber profile filter," Ex-1005, 13:28-36, and also

receives information item broadcast criteria such as keywords included in an InfoBite, *id.*, 22:6-9 ("In Block 201, an InfoBite is received. In this example, the InfoBite contains five (5) occurrences of the word 'exercise' and giver (5) occurrences of the word 'weights' in an article with forty (40) words."); *see also* Ex-1002, ¶129.

Tso also discloses a process that includes comparing the profile criteria to the information item broadcast criteria. As shown in Tso's FIG. 5, the InfoCast server receives an InfoCast from a content provider (step 101), and then the filter is applied to filter the InfoCast for particular users (step 103). Ex-1005, FIG. 5. The filtering process is also shown in FIG. 7, which shows that the filter "of each user" is applied (step 203). Ex-1005, FIG. 7. Tso further explains that "schedule/resource controller 61 filters the traffic report InfoBites by using the criteria of the time of day and the location of each user to decide which InfoBites—*i.e.*, the parts of the InfoCast that pertain to the particular user. Ex-1005, 13:59-64; Ex-1002, ¶129 ("To perform the filtering function, Tso's schedule/resource controller receives as an input profile criteria for the subscribers and information item broadcast criteria such as keywords."); *see also* Ex-1002, ¶130.

Tso then performs an algorithmic step of having server A 17 send the broadcast data to each client. Ex-1005, 13:59-64, FIG. 5 (steps 101, 103, 105, 107). Tso's schedule resource controller *uses* the filter for this purpose. Ex-1005, 13:31-

34 ("the filter used by the schedule/resource controller 61"), 21:52-53 ("Through the use of the user's subscriber profile in the InfoCast filter, InfoBites may be filtered on content alone.").

Tso does not explicitly describe the filter as controlling a switch to filter information items. This would have been obvious over Haber. Ex-1002, ¶¶132-134. Haber teaches "switching nodes (16)" that include "a switch (18)." Ex-1007, Abstract. One of the uses of Haber's switching nodes is to enable a "broadcast data processor process." Ex-1007, 2:40-42. A "data processor 20" in the switching nodes may be "configured to perform a broadcast data network processing function." Ex-1007, 3:34-35. The "broadcast data processor process 74," *id.*, 6:58-60, includes:

- determining "when a selected packet 34 which needs to be broadcast arrives data processor 20," *id.*, 7:22-24,
- generating a "processed packet" by "duplicating data 38 (see FIG. 3) from the received packet 34 into the processed packet and inserting an appropriate routing code 40" obtained from a broadcast table, *id.*, 7:29-34, and
- transmitting "the processed packet to the input port 22 of switch 18 (see FIGS. 1-2)," which will then route the packet to the appropriate destination, *id.*, 7:40-45.

This task loops until the message is delivered to all intended recipients. *Id.*, 7:45-

53. Performing this technique within switching nodes can improve network efficiency by performing processing that would otherwise need to be done in the packet switched network by source and destination nodes, which would increase traffic throughout the network because there would be "increased transporting of redundant user information." Ex-1007, 8:20-31.

It would have been obvious to implement Tso's InfoCast server functionality so based on the concepts of Haber. Based on Haber's teachings, a POSA would have found it obvious to implement Tso's InfoCast server so that it is executed by a processor administrating broadcast processing functions within a switching node including a switch. Ex-1002, ¶¶134-145. As explained in more detail below, this would have permitted the selective routing of InfoBites to relevant users in a packet-switched network thus allowing them to receive the InfoBites they are supposed to receive based on Tso's filtering. *Infra* §VII.A.3. This would have resulted in a mechanism (schedule/resource controller) that controlled a switch within the switching node to filter information items by selectively routing them to connected nodes that are intended recipients of the messages, while not routing them to nodes that are not intended recipients. Ex-1002, ¶134.

3. Motivation to Combine/Obviousness of the Challenged Claims

A POSA would have found it obvious to employ the combined teachings of Tso and Haber such that Tso's InfoCast server logic and system was implemented

in a data processor within a switching node to route data in a packet-switched data network, such as that disclosed by Haber. Ex-1002, ¶¶134-145. Specifically, although Tso may not explicitly disclose a filter that *controls a switch to filter information items*, this feature would have been obvious.

Tso explains that the disclosed system "supports the transfer of information over the nodes of many types of communication networks such as cellular data networks, local area networks, and wide area networks." Ex-1005, 2:1-4. Haber describes switching nodes in a "packet switching communication network" that include a "switch 18 and a data processor 20." Ex-1007, 2:66-3:1. Unlike traditional switches, which merely route data and "refrain from modifying user data conveyed by packets," *id.*, 3:15-17, the data processor in Haber's switching nodes "perform[] a non-switching data processing function, and that network processing function applies to user data conveyed by packets." *Id.*, 3:21-23. One example of a process executed by the processor within the switching node is a "broadcast data processor process," though other processing can be performed depending "upon system requirements." *Id.*, FIGS. 5-6, 2:34-42, 3:24-25, 3:34-35, 6:10-13, 6:58-60. Based on Haber's teachings, it would have been obvious to implement Tso's InfoCast servers in switching nodes such that Tso's filter controlled the switch to filter information items before they are routed downstream through the packet switched network. Ex-1002, ¶¶135-145.

Haber encourages a POSA to implement broadcasting applications such as Tso's InfoCast broadcast application within network nodes and therefore, there is some teaching, suggestion or motivation in the prior art to arrive at the claimed subject matter. Ex-1002, ¶140 ("[T]he combination of Tso and Haber encourage a POSA to implement Tso in a switching node such that the output of Tso's filter is used by the schedule/resource controller would have controlled the switch to filter information items.").

Specifically, Haber explains that both service providers and network users want improved efficiency in communication networks. Ex-1007, 1:25-34; Ex-1002, ¶138. For instance, "[s]ervice providers want improved efficiency because they can generate greater value by transporting a greater amount of user information using a given collection of network resources." *Id.*, 1:25-30. "Users want improved efficiency because the costs of providing the network resources can then be spread ove ra greater number of user information transfers to lower the costs of transporting any single item of user information." *Id.*, 1:30-34. But traditional packet switched networks were "operated in a relatively inefficient manner" because the links are used to transport a large degree of redundant information. *Id.*, 1:35-39. This is because "conventional networks" "view the processing of user information as a user responsibility." Ex-1007, 1:44-47. These efficiency concerns are exacerbated when the network uses RF links due to spectrum scarcity. *Id.*, 2:3-12. Haber discloses

improving network efficiency by moving user data processing functions—like broadcasting techniques—into a data processor within the switches in the network itself, as explained above. Ex-1002, ¶139. This solution improves network efficiency because the switches within the network are more selective in routing packets through the network and does "not require substantially increased switch complexity." Ex-1007, 8:31-34; Ex-1002, ¶139.

A POSA would have observed that Tso's system "supports the transfer of information over the nodes of many types of communication networks," and that the network switches in such networks would have routed packets between sources and destinations, including Tso's InfoCast servers as an intermediate destination within the network. Ex-1002, ¶140. By implementing Tso's InfoCast server functionality in processors within switching nodes as expressly suggested by Haber, the overall traffic flowing over a packet-switched network can be reduced by applying Tso's filtering, thereby improving network efficiency. Ex-1002, ¶140 ("[I]implementing Tso's InfoCAst servers within the switching nodes of a packet-switched network would have reduced the redundant data being sent from different switches within the network using Tso's InfoBit[e] filtering techniques."); Ex-1005, 13:27-34 (describing filtering process), 13:59-64 (filtering performed based on criteria for "each user" to determine which InfoBites to send to "each client"); Ex-1007, 7:22-24 (explaining that broadcasting process controls a switch to broadcast the data that

"needs to be broadcast"). This efficiency would have resulted based on Haber's teaching that "node addresses" for a broadcasting process "are local addresses to the switching node 16 performing process 74," and can thus route data only to those nodes "that can be reached from" a particular switching node "without going through other switching nodes." Ex-1007, 7:6-12. Therefore, the prior art itself suggests implementing Tso in a switching node and having Tso's filter control a switch to filter information items.

Moreover, placing Tso's InfoCast server in a switching node would have merely changed the location of the InfoCast server functionality in the network to a location that was a known location to perform broadcast data filtering—i.e., "an apparent place to implement the InfoCast server using a known location for data broadcast data filtering." Ex-1002, ¶141. Specifically, implementing Tso's InfoCast server in a switching node such that the filter would have controlled a switch in the switching node would have merely used Haber's technique for reducing traffic on communications link in a predictable manner—to filter broadcast packets designed for users over one or more networks. Ex-1002, ¶141; Ex-1007, 8:21-34. A POSA would have understood that Tso's network diagram in FIG. 1 does not depict switches but would have understood that InfoBite packets would have been routed through switches through the disclosed networks. Ex-1005, 8:12-47; 17:15-17 (referring to "packet radio networks"), 18:14-26 (referring to "a TCP/IP packet

on a LAN"); Ex-1002, ¶142. By applying Tso's InfoCast servers at the point of switching, the data routed through those switches would have decreased due to Tso's content filtering in the same way that Haber's broadcasting technique reduced unnecessary packet flow—by reducing the number of packets sent from the switch downstream. Ex-1002, ¶¶142-143. Indeed, Haber discloses a broadcasting device within a network node implemented in a processor for controlling the switch based on broadcast criteria that improved the efficiency of the packet-switched network. Ex-1007, 8:21-34. A POSA would have been led to implement Tso's InfoCast server at a data processor within a switching node thus giving rise to the same efficiencies in the overall packet switched network exhibited by placing Haber's broadcasting application within the switching node. Ex-1002, ¶143. Implementing Tso so as to have the filter control a switch for filtering information items would have merely applied Haber's technique in a Tso packet switching network to yield predictable results—namely the ability to control a switch based on filtered data to be routed to downstream nodes. Ex-1002, ¶¶141, 143, 145. Moreover, because network switches were designed to operate on packet data very quickly, it would have been viewed as an optimal place to employ the filtering functionality of Tso's InfoCast servers because it would have simplified the end-to-end system design by implementing the filtering process at a place where data was already passing through the network. Ex-1002, ¶144.

A POSA would have expected to be successful in implementing Tso's InfoCast server in a switching node as disclosed by Haber because it would have required routine programming techniques as Haber suggests. Ex-1007, 6:61-62 ("Process 764 may be defined through programming instructions or in other ways well known in the art."); Ex-1002, ¶141 (explaining Haber teaches implementing "broadcasting programs in switching nodes"). Moreover, the art of broadcasting applications was developed by January 2001, as is evident from each of Tso, Haber, and Ericsson, each of which describe broadcasting data to users in networks as explained above. *See also* Ex-1002, ¶62.

Insofar as Tso does not disclose or render obvious a *node profile management circuit*, it would have been obvious to implement Ericsson's "profile management system 14" as a circuit for managing Tso's subscriber database 53. Ex-1002, ¶¶184-189. Like Tso, Ericsson teaches a system in which broadcast data is disseminated to subscribers of a mobile telephone network. Ex-1006, 1:2-4. The broadcast data includes information like stock-market data, traffic data, or sports information. *Id.*, 1:5-7. Ericsson uses a "message distribution centre" that is "connected to or include[es] at least one information source" and generates "information messages for a particular subscriber in accordance with the customer-defined profile of said subscriber" and then transmits those messages to the subscriber. *Id.*, 2:19-29. A "profile management system" "includes or is connected to a customer database

containing the customer profiles." Ex-1006, 5:2-4. This "profile management system" can be located at the message distribution centre 10. *Id.*, 10:10-13. As its name indicates, the profile management system 14 is responsible for, among other things, managing the user profiles. Ex-1002, ¶185.

Even if it could be argued that Tso does not disclose a "*node profile management circuit*," it would have been obvious to include Ericsson's "profile management system" which a POSA would have understood to be code executed on a circuit, such as a processor, Ex-1002, ¶183, to manage the node profile and would have found it obvious to integrate its functionality with Tso's schedule/resource controller as a tool for managing the user's profiles maintained by a particular InfoCast server*, id.*, ¶186.

Implementing Ericsson's profile management system in Tso's schedule resource controller as a mechanism for managing the profiles stored in subscriber database would have merely combined prior art elements (Tso's schedule/resource controller and Ericsson's profile management system) according to known methods (i.e., using computer programming techniques to cause a circuit to perform functionalities for managing user profiles, as suggested by both Tso and Ericsson, *see* Ex-1005, 5:23-27 (server "maintain[s] and updat[es] the user's record in both its own subscriber database" and the home database), Ex-1006, 10:10-13 ("profile management system 14 connected to a customer database 42")), and would have

produced predictable results (managing a user profile database local to the node using known database management techniques). Ex-1002, ¶¶187-188. Implementing Ericsson's "profile management system 14" would have been an obvious way to implement Tso's database management functionality. Ericsson's profile management system 14 would have been an obvious tool for performing database management and access operations and would have been implemented as part of Tso's schedule/resource as a circuit for managing Tso's subscriber database to keep it updated. Ex-1005, 5:23-27; Ex-1002, ¶188. Moreover, adding Ericsson's profile management system in place of the algorithms for managing the subscriber database in Tso would have merely been the substitution of one known element for another and would have led to only predictable results because it would have swapped one database management tool for another embodied in Ericsson's circuit and would have continued to manage and update the profile for the node as contemplated by Tso. Ex-1002, ¶188.

The POSA would have expected success in adding Ericsson's "profile management system" to Tso's InfoCast server because doing so would have implemented existing and known electronic hardware (Ericsson's "profile management system") in another known environment (Tso's InfoCast server) using known, and indeed standardized programming techniques like the use of ODBC and SQL techniques as described in more detail above. Ex-1002, ¶189; *supra*

§VII.A.2.d.

4. Claim 2: A broadcasting device according to claim 1, further comprising a mechanism configured for synthesizing downstream node profiles configured for automatically updating the node profile management circuit in which said broadcasting device is installed as a function of subjective criteria.

Tso discloses or renders obvious the additional features of this claim. As explained above, the "mechanism for synthesizing" is interpreted under §112, ¶6 as a circuit or software algorithm executed by a circuit that a circuit that (1) it receives as an input information concerning profiles from downstream nodes, (2) it synthesizes that information about the profiles of the downstream nodes, and (3) it supplies the results to the node profile management circuit. This is disclosed by, or obvious over, Tso.

In Tso, after a user receives an InfoBite, they can perform an "InfoAction," which can include "requesting greater detail of [a] traffic condition for a particular freeway." Ex-1005, 15:4-8. This causes the InfoAction to be logged "for notifying schedule/resource controller 61 of the user's request." Ex-1005, 15:12-16. Once received, this logged data is used to update the "subscriber database 53," and thus "revise the user profile contained as records in the subscriber database . . . ." Ex-1005, 15:41-45. User interactions with InfoBites cause updates to the keywords associated with user interests stored for that user. Ex-1005, 23:51-64. "In this way, the user will be able to modify his profile simply by responding to the InfoBite

messages by, for example, requesting more information, and the scheduler of the InfoCast server will be able to refine the subscriber profile of the user, and thereby refine the user's InfoCast filter, based on the user's response." *Id.*, 23:65-24:3.

Tso's "scheduler" is *a mechanism configured for synthesizing downstream node profiles configured for automatically updating the node profile management circuit in which the broadcasting device is installed as a function of subjective criteria* (i.e., the interests of Tso's end-users as indicated by their interactions with specified InfoBites). Ex-1002, ¶147. This is because Tso's "schedule/resource controller" receives profiles from downstream nodes in the form of logged data concerning InfoActions that are reported to the server. Ex-1005, 15:12-15. The scheduler then updates the profiles of the individual users based on the user's interests—*subjective criteria*—as indicated by user interactions with InfoBites associated with specified keywords. *Id.*, 23:51-24:7. And, the results of the synthesis, which are reflected in the updated subscriber database, are then supplied to the node profile management circuit by way of the ODBC API both in terms of the "subscriber profile filter" read from the database and in new updates to subscriber records entered into the database. Ex-1005, 6:34-52 (referring to the ODBC API), FIG. 3 (showing interface between schedule/resource controller (61) and ODBC API (59)), 13:31-34 (referring to schedule/resource controller 61 using a filter including "a subscriber profile filter"). By updating the user profiles for users associated with

a specific InfoCast server, the mechanism synthesizes the data receives and updates the node profile (i.e., the collection of profiles for all users of that node). As Dr. Weismann explains "[b]Because this 'scheduler' is refining the user profiles of the users serviced by the node, it is synthesizing the profile of the entire node, which is defined by the collection of user records for users connected to that InfoCast server." Ex-1002, ¶147.

Additionally, under the alternative construction under § 112, ¶6, Tso discloses or renders obvious an algorithm including receiving as an input information concerning profiles from downstream nodes because Tso's "schedule/resource controller" receives profiles from downstream nodes in the form of logs. Ex-1005, 11:61-64, 15:12-15, 15:31-51; Ex-1002, ¶148. Tso also describes synthesizing the information about the profiles of the downstream nodes because it receives logs from the downstream client nodes and updates the subscriber database—e.g., to reflect new user interests. Ex-1005, 23:27-50 (describing transmitting keywords from client to InfoCast server based on InfoActions or messages from the client); Ex-1002, ¶149.

Finally, Tso describes supplying the results to the node profile management circuit because it describes various techniques of updating the subscriber database to reflect interesting, including updating "by way of the ODBC API," thus updating the "subscriber profile filter" which is later applied to InfoBites. Ex-1005, 6:34-52;

Ex-1002, ¶150.

Under any construction of this claim, this occurs *automatically* because it occurs "simply by [a user] responding to the InfoBite messages" and providing the logged data to the scheduler. Ex-1005, 15:65-16:1; Ex-1002, ¶151. Thus, by interacting with a specific information item, the user's interest can be updated based on InfoAction logs. Ex-1005, 23:27-50.

5. Claim 4: "A broadcasting device according to claim 1, characterized in that it is applied to any type of access network.

Tso discloses or renders obvious the additional features of this claim because the InfoCast server can be used to support "the transfer of information over the nodes of many types of communications networks such as cellular data networks, local area networks, and wide area networks." Ex-1005, 2:1-4. From this breadth of network types, a POSA would have understood that the InfoCast server would be *applied to any type of access network*. Ex-1002, ¶¶153-154. At the very least it would have been obvious to deploy the InfoCast server in any type of access network because of the breadth of Tso's description and an express suggestion that it may be used to transmit data "over the nodes of many types of communications networks." Ex-1005, 2:1-4.

6. Claim 5: "A broadcasting device according to claim 1, characterized in that it is applied to a mobile radio network access network."

Tso discloses or renders obvious the additional features of this claim. Tso discloses that the system may be used in "cellular data networks." Ex-1005, 2:1-4, FIGS. 1-2. Because InfoCast server 17 serves "Network B"—which is "a cellular communication system"—it is applied to the mobile radio network access network. Ex-1005, 2:64-66, 3:49-52 (Network B can be a GSM network), FIG. 1. Those skilled in the art understood that a cellular network, such as a GSM network included *a mobile radio network access network*, thus demonstrating that Tso's device is *applied to* such a network by passing InfoBites into such a network and receiving data from clients in such a network. Ex-1005, 14:19-21 (InfoBite sent as SMS message in GSM system), 15:12-18, 41-44 (schedule/resource controller receives logs of InfoActions); Ex-1008, 2:55-56 ("An access network is a network allowing at least one subscriber to access to [sic] a core network."); Ex-1009, 4:38-39 (referring to a "standard GSM access network portion provided by the BSSs"); *see also* Ex-1002, ¶156.

7. Claim 6: "A broadcasting device according to claim 1, characterized in that it is applied to a mobile radio network access network using a space segment."

Tso discloses or renders obvious the additional features of this claim. Tso discloses that "content provider F 8" is configured to provide InfoCast data "through the use of a satellite communications network." Ex-1005, 3:42-46. Thus, InfoCast server that serves "Network B"—which can be a GSM cellular network, *supra*

§VII.A.6—is applied to the GSM network using a space segment because it receives InfoCast data for providing it to client terminals attached to the mobile ratio network access network via a satellite link. Ex-1002, ¶158. This is consistent with the '770 patent which refers to a "satellite gateway," an "air interface of the space segment," and a "satellite terminal." Ex-1001, 6:1-16.

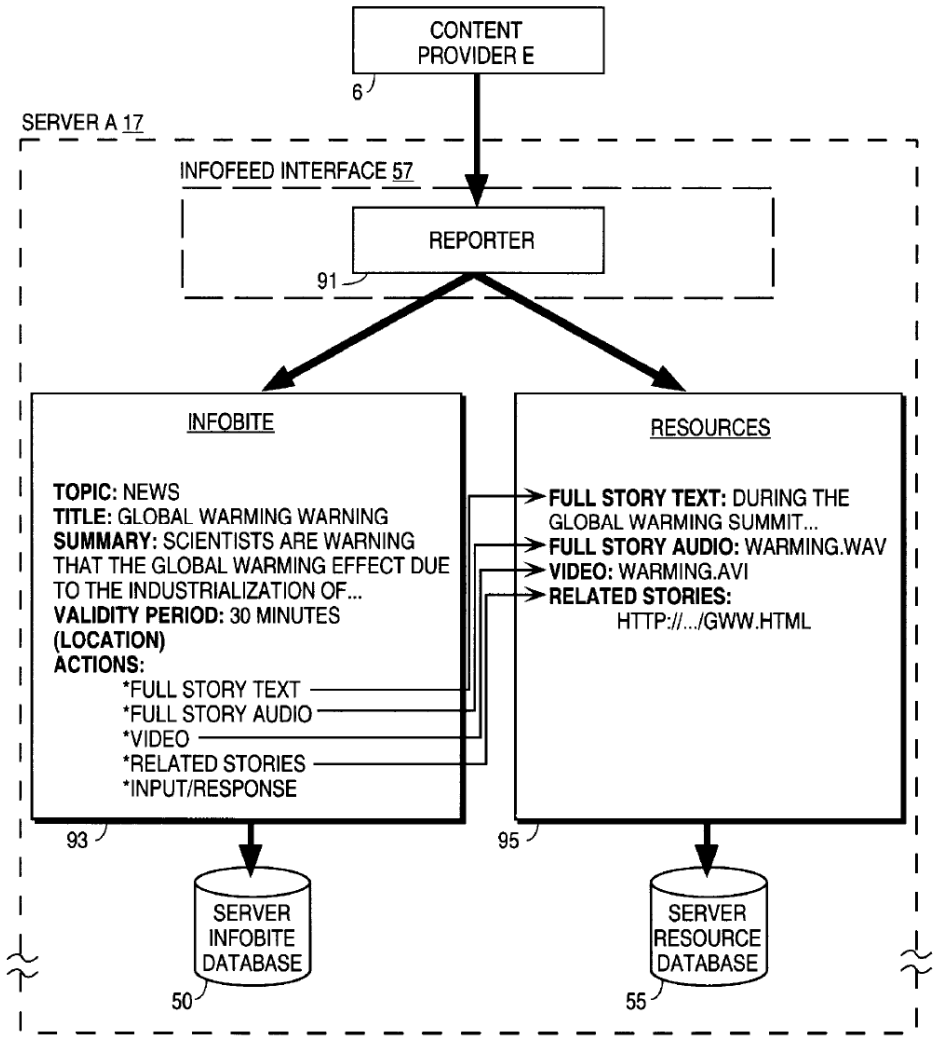
8. Claim 16

a. [16.Pre] "A broadcast network having a plurality of nodes, comprising:"

This preamble is broader than the preamble of clam 1. Therefore, the analysis of the preamble of claim 1 applies here. *See* [1.Pre], *supra*, §VII.A.2.a.

b. [16A] "a node configured to receive input information streams from an upstream node and output processed information to a downstream node, said node comprising,"

Tso discloses and renders obvious this limitation. As explained above, Tso describes an InfoCast server in a node in the network of FIG. 1 (e.g., server A (17)). Ex-1005, FIG. 1. Tso's InfoCast server is at *a node configured to receive input information streams from an upstream node*, such as any of the content provider nodes A-H. For example, FIG. 4 shows *input information streams* being provided to the InfoCast server A 17 from "Content Provider E."



Ex-1005, FIG. 4. InfoCasts "can consist of either a data file containing one or more separate articles, or a video/audio feed," or "a multimedia feed containing one or more vide segments along with any associated audio," or "text file[s] containing one or more news stories." Ex-1005, 7:17-25. These information broadcasts are *streams of information items* such as videos, audio files, and text files that are received at the node (InfoCast server). Ex-1002, ¶¶99-100, 161-164; *see also supra* §VII.A.2.b.

Tso's InfoCast servers *output processed information to a downstream node* in

the form of InfoBites that may be transmitted with the InfoCast content or provided without the InfoCast content to clients (downstream nodes). Ex-1005, FIG. 7 (InfoCast server receives InfoCast and generates one or more InfoBites" that are filtered and transmitted to users), 7:30-40 (describing generation of InfoBite), 19:41-59 (describing filtering and explaining that InfoBites can be transmitted either with "complete news story" with InfoBite or just the InfoBite, depending on network conditions).

c. [16Ai] "a circuit configured to manage profile information of said downstream node,"

Tso's scheduler of the "scheduler/resource controller" receives profile information about the downstream node, such as log data reflecting interactions with InfoBites regarding certain topics and is thus *configured to manage profile information of said downstream node* as explained in connection with claims 1 and 2, above. *Supra* §§VII.A.2.d (Limitation [1Bi]), VII.A.4 (claim 2). For the reasons explained above, a POSA would have understood that the schedule/resource controller functionality was implemented in hardware and is thus a circuit. *Id.*

d. [16Aii] "a filter mechanism configured to receive said managed profile information from said circuit and broadcasting information and routing information associated with said input information streams, and"

Tso discloses or renders this limitation obvious. As explained above with respect to limitation [1Bii], Tso discloses a mechanism that is *a filter mechanism*.

Supra §VII.A.2.e. Additionally, Tso's *filter mechanism*, which is used by the schedule/resource controller, Ex-1005, 13:31-34 ("[T]he filter used by the schedule/resource controller 61 is composed of three filters, a temporal filter, a positional filter, and a subscriber profile filter."), is *configured to receive said managed profile information* in the context of applying the "subscriber profile filter," *id.*. Because the schedule/resource controller uses filters to determine which InfoBites to transmit to which subscribers, *id.*, 15:52-56, 21:61-22:48, a POSA would have understood that the filter used by the schedule/resource controller obtains the profile information from the subscriber database through the ODBC API or other "data management system." Ex-1002, ¶167; Ex-1005, 6:36-45. Thus, Tso's filter is configured to receive *managed profile information from said circuit* that is configured to read data out of the database and write data to the database. Ex-1002, ¶167.

Additionally, the *filter mechanism* receives InfoBites, which includes *broadcasting information and routing information associated with said input information streams*. As explained above, InfoBites are "associated with input information streams" because they are obtained with the InfoCasts. Ex-1005, 7:30-40 ("For each item contained in an InfoCast, InfoFeed interface 57 will create an 'InfoBite," which can be sent to a user . . . ."). InfoBites include *broadcasting information*, such as field "Packet_ID" which indicates whether the message is a

control message, or an InfoBite, for example. Ex-1005, 8:12-47; Ex-1002, ¶168. InfoBites also include *routing information*, such as a "Location_Bit" which indicates if the InfoBite is location specific, and then indicates a specific longitude and latitude used in routing the InfoBite with the location filter, and thus defining whether a specific InfoBite should be routed to the user based on the user's location. Ex-1005, 10:41-46, 13:31-34, 8:12-14; Ex-1002, ¶169. Moreover, because the filter is used to determine which users are to receive which InfoBites and routing them to the correct user device (e.g., via LAN 27 or cellular network 21 shown in FIG. 1), the *filter mechanism* is configured for b*roadcasting information* to recipients and *routing information* to them. For example, if an InfoBite is to be transmitted to "client A" (23, FIG. 1), it is routed through "messaging interface 67" which causes it to be sent as an SMS message over the GSM system of network B 21." Ex-1005, 14:16-21. Thus, the InfoBites are broadcast and routed to users consistent with their filtering criteria. Ex-1002, ¶170.

e. [16Aiii] "a switch, controlled by said filter mechanism, said switch configured to control retransmission of information items of said input information streams whose broadcasting criteria correspond to criteria of the profile of the downstream node."

Tso in view of Haber renders this limitation obvious. It would have been obvious to implement Tso's InfoCast server in a switching node in a packet switched network consistent with the teachings Haber as explained above. *Supra* §§VII.A.2,

VII.A.3.

In implementing the InfoCast server this way, a POSA would have found it obvious to have a *switch controlled by the filter mechanism* when the filter mechanism "transmits the processed packet to the input port 22 of the switch 18" thereby controlling *retransmission of the* InfoCast *information items*, such as an InfoBite and associated information items like a news story. Ex-1007, 7:42-45; Ex-1005, 10:51-57 (explaining that where bandwidth constraints are not an issue "the complete news story would be sent to a user in addition to the InfoBite associated with that news story'). This data is retransmitted in the same manner that the broadcast device retransmits the data because the data is initially transmitted by the content providers, received and processed by the InfoCast server, and then transmitted again to the clients. Ex-1005, 7:30-40 ("each item contained in an InfoCast" is processed into an "InfoBite"), 10:53-61 (discussing retransmission of "complete item" "in addition to the InfoBite"), 13:50-53 ("resources associated with each InfoBite will be stored in server content database 51"); *see also* Ex-1001, 3:49-51 (discussing "retransmission" of "stored information items to downstream node"), 5:5-13 (discussing retransmission based on commands such as "delay in routing" and a "routing time band").

By retransmitting the news story received as part of the InfoCast to the user based on filtering criteria, the switch controlled by the filter is *configured to control*

retransmission of information items of said input information streams whose broadcasting criteria correspond to criteria of the profile of the downstream node. Ex-1002, ¶176. For example, Tso explains that "an InfoCast from" a content provider "can contain several news stories. Each of these news stories can be filtered as described below to assess its suitability to be sent to each user." Ex-1005, 10:47-51. If bandwidth if not an issue, the switch will route the "complete news story" to the user "in addition to the InfoBite associated with that news story." *Id.*, 10:53-57. Therefore, Tso discloses and renders obvious this limitation in combination with Haber. The rationale for why a POSA would have found the subject matter of claim 16 obvious discussed with respect to claim 1 is equally applicable here. *Supra* §§VII.A.2, VII.A.3.

9. Claim 17: "The broadcast network of claim 16, wherein if broadcasting criteria of an information item does not correspond to the criteria of the profile of the downstream node, the filter mechanism commands the switch to discard the information item."

This limitation would have been obvious over Tso in view of Haber. As explained above in connection with the discussion of the combination of Tso and Haber, when an InfoCast is received at Haber's switching node, a determination is made that it "needs to be broadcast" when it arrives at the data processor. Ex-1007, 7:22-24. In certain cases, "an InfoCast server might receive an InfoCast containing traffic information for areas which are not served by the InfoCast server. In this

case, only the traffic information relevant to the areas served by the InfoCast server will be processed into one or more InfoBites." Ex-1005, 13:53-58. Such traffic information would *not correspond to the criteria of the profile of the downstream node*—specifically the location criteria for those nodes. Ex-1002, ¶178. In such a case, Tso's filtering mechanism implemented in a switching node based on Haber's teachings would have obviously commanded the switch *to discard the information item* rather than route it to the downstream nodes.

A POSA would have seen a number of ways to discard unused or unwanted data, including failing to store it, or failing to output it and allowing it to be over-written. Ex-1002, ¶¶178-179. In Tso system modified as described above, packets for broadcast would have been sent to the InfoCast server executing on a data processor within a switching node. *Supra* §§VII.A.2.e, VII.A.3. In the circumstances contemplated by Tso in which an InfoCast server received data that was not to be processed into InfoBites because it was irrelevant to the users being served by the server, Ex-1005, 13:53-58, a POSA would have looked for options about how to handle such data once it is determined it was irrelevant. One obvious choice was to use Tso's location filter to identify data that does not relate to any users served by the InfoCast server. Ex-1002, ¶179. Once it is determined that the data will not be transmitted to users, it would have been obvious to transmit a notification to a switch to instruct the switch to discard the InfoCast (information

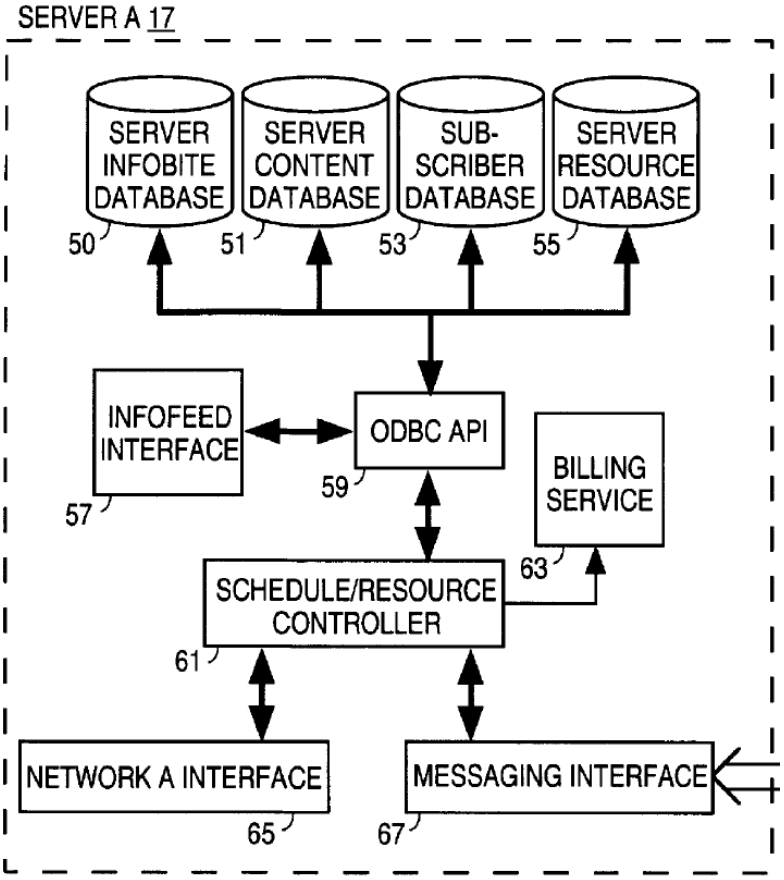
item) because it will not be broadcast to downstream nodes. Ex-1002, ¶179 (citing Ex-1007, FIG. 6). Indeed, discarding irrelevant data after filtering was a technique used when a filter determines that received data is "not addressed to the attached computer," and thus would have been an obvious technique used to eliminate unnecessary data. Ex-1002, ¶179. By instructing the switch to discard the InfoCast, the switch will not be expecting copies of that InfoCast message to be provided to it for broadcasting purposes and may proceed to other tasks. Ex-1002, ¶180. Indeed, this is suggested by the combination of Tso (which teaches that certain InfoCasts may not be relevant to connected clients) and Haber, which teaches that the data processor feeds data back to the switch after processing for downstream retransmission after processing. *Id.*

10. Claim 18: "The broadcast network of claim 16, further comprising a synthesizing mechanism that receives profile information about the downstream node, and is configured to synthesize said profile information and supply said synthesized information to said circuit, and automatically update the circuit in which the device is installed as a function of subjective criteria."

As explained above, the "synthesizing mechanism" is interpreted under §112, ¶6 as a circuit or software algorithm executed by a circuit that (a circuit that (1) receives information concerning profiles from downstream nodes, and (2) updates node profiles via a circuit. This is disclosed by, or obvious over, Tso.

Tso's scheduler of the "scheduler/resource controller" *receives profile*

information about the downstream node, such as log data reflecting interactions with InfoBites regarding certain topics as explained in connection with claim 2, above. *Supra* §VII.A.4. For the reasons explained with respect to claim 2, Tso discloses a *synthesizing mechanism*. *Id.* The scheduler synthesizes *said profile information* from each of the nodes that transmit log information and, using the "scheduler/resource controller," supplies s*aid synthesized information to said circuit* configured to manage said profile information—namely the portion of the "scheduler/resource controller" that interfaces with the "subscriber database 53" to update user profiles. Ex-1005, 15:41-51 ("scheduler/resource controller 61" receives logs, and "will update subscriber database 53," which "will revise the user profile contained as records in subscriber database 53"). Thus, the portion of the "scheduler/resource controller" that executes the routines to update subscriber database based on synthesized profile information is a "circuit" because it is implemented on hardware for writing data into the database to update the profiles. Ex-1002, ¶¶113-115 ("A POSA would have known that the ODBC API was a standardized tool implemented in code executing on a microprocessor—a circuit—which allowed for a standardized way to interface with various databases."). This circuit manages the profile information through the ODBC API or other "data management system." Ex-1005, 6:36-45.



Ex-1005, FIG. 3 (excerpted) (showing how schedule/resource controller (61) interfaces with subscriber database 53 through ODBC API, thus permitting updating of profile information); Ex-1002, ¶¶114-115. And, as explained with respect to claim 2, Tso discloses or renders obvious using the *synthesizing mechanism* to *automatically update the circuit in which the device is installed as a function of subjective criteria*. *Supra* §VII.A.4 (discussing claim 2).

IX. GROUNDS FOR STANDING

Petitioner submits that the '770 patent is available for IPR and that it is not estopped from challenging the '770 patent.

X. MANDATORY NOTICES

A. REAL PARTY-IN-INTEREST

Pursuant to 37 C.F.R. §42.8(b)(1), Petitioner certifies that Unified Patents, LLC is the sole real party-in-interest, and further certifies that no other party exercised control or could have exercised control over Unified's participation in this proceeding, the filing of this petition, or the conduct of any ensuing trial. In view of *Worlds Inc. v. Bungie, Inc.*, 903 F.3d 1237, 1242-44 (Fed. Cir. 2018), Unified has submitted a declaration in support of its certification. Ex-1013 ("Declaration of Kevin Jakel").

B. RELATED MATTERS

The '770 patent is being asserted in the following civil action:

- *WSOU Investments LLC d/b/a Brazos Licensing and Development v. TP-Link Technology Co., Ltd.*, No. 6:20-cv-01019.

C. LEAD AND BACK-UP COUNSEL

Lead Counsel:	Andrew R. Sommer Reg. No. 53,932 Greenberg Traurig, LLP 1750 Tysons Boulevard McLean, VA 22102 T: (703) 749-1370 sommera@gtlaw.com
Back-Up Counsel:	Ashraf Fawzy Reg. No. 67,914 Unified Patents, LLC PO Box 53345 Washington, DC 20009 T: (202) 871-0110 afawzy@unifiedpatents.com Alyssa Holtslander Reg. No. 64,026 Unified Patents, LLC PO Box 53345 T: (202) 750-3605 alyssa@unifiedpatents.com

D. SERVICE

Petitioner consents to service by email on the following email addresses: sommera@gtlaw.com; afawzy@unifiedpatents.com; alyssa@unifiedpatents.com.

XI. FEES

The fee is being paid electronically through PTAB E2E.

XII. CONCLUSION

For the foregoing reasons, trial should be instituted and claims 1-2, 4-6, and 16-18 of the ’770 patent should be canceled.

Dated: July 2, 2021

Respectfully Submitted,

/Andrew R. Sommer/

Andrew R. Sommer
Reg. No. 53,932

CERTIFICATE OF COMPLIANCE

This petition complies with the word count limits set forth in 37 C.F.R. § 42.24(a)(i), effective May 2, 2016, because this Petition contains 13,573 words, excluding the parts of the petition exempted by 37 C.F.R. § 42.24(a), as determined using the word count provided by Microsoft Word, which was used to prepare this Petition.

Dated: July 2, 2021

Respectfully Submitted,

/Andrew R. Sommer/

Andrew R. Sommer
Reg. No. 53,932

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(a), the undersigned certifies that on July 2, 2021, I caused a true and correct copy of **PETITION FOR *INTER PARTES* REVIEW OF CLAIMS 1-2, 4-6, and 16-18 OF U.S. PATENT NO. U.S. Patent No. 7,333,770** and **Exhibits 1001-1018** by United Parcel Service (UPS) on the Patent Owner at the correspondence address of record for U.S. Patent No. 7,333,770 as follows:

Mr. William Mandir
SUGHRUE MION, PLLC
2000 Pennsylvania Avenue, N.W.
Suite 9000
Washington, DC 20006

/Andrew R. Sommer/

Andrew R. Sommer
Reg. No. 53,932